

## Mine Power: Partnering to Upgrade Energy Infrastructure in the DRC

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### SUMMARY

<b>Challenge</b>	How to leverage mining–related power demand to attract private investment in the energy sector. (Precept 10 of the National Resource Charter <sup>1</sup> ).
<b>Country and period of focus</b>	Democratic Republic of the Congo, 2012
<b>Challenge in country</b>	Lack of energy infrastructure has been a key bottleneck to investment and growth in the Katanga region.
<b>Core decisions</b>	Mining companies invest in power generation and grid extensions carried out by the public utility, in return for utility bill credits.
<b>Implications of decisions</b>	The public utility could benefit from increased power generation and an extension of the backbone infrastructure, while the companies get access to cheaper and more reliable electricity.
<b>Policy decisions, implementation and governance</b>	In 2012 an agreement and loan was signed between the public utility and Katanga Mining to develop the power supply.  Significant challenges include an uncertain regulatory environment, financial solvency risk of the utility, and lack of integrated energy planning.  The lack of transparency surrounding the energy sector, previous coordination failures and allegations of corruption highlight large governance risks.
<b>Did it work?</b>	The investment is still ongoing.
<b>Quantified losses</b>	Investment of US \$283.5 million secured for upgrading the energy infrastructure but there are large implementation and governance risks.
<b>Lessons learned</b>	Potential benefits from improved energy infrastructure are large, yet it remains to be seen if an effective partnership with the public utility is possible amid the multiple challenges.

### ABOUT THE SERIES

This is one of a series of case studies that illustrates the principles of the Natural Resource Charter. The charter is a tool used by governments and societies seeking to better harness the opportunities created by extractive resources.

## THE CHALLENGE

Big dams and hydropower offer great potential to provide power in sub-Saharan Africa. The world's largest hydropower scheme is the Inga site on the Congo River, which has an estimated potential to generate 40,000MW. Yet, so far, the Inga scheme has failed to produce what was promised. The electricity grid only reaches 11 percent of the population and suffers from intermittent electricity supply and regular power outages.<sup>2</sup>

Power shortages and unreliable power supply have affected the energy-intensive copper mining industry in the country, which constitutes 21 percent of GDP and 98 percent of export revenues.<sup>3</sup> (The Katanga region is considered be the second largest copper-cobalt deposit in the world.)<sup>4</sup>

A hydropower-based grid, such as Inga, can provide a relatively inexpensive source of power, which in turn means the public utility Société Nationale d'Electricité (SNEL) can charge low tariffs to its consumers, including mining companies. The majority of mines operating in Katanga are also incentivized to buy power from the public utility as the low tariff is subsidized (set below cost recovery at around 3.5 c/kWh). However, due to regular outages, mines also require power from back-up diesel generators, which can cost up to 48 c/kWh. Even with back-up diesel generators for self-supply, the mines have insufficient capacity to meet the operations' power demand (averaging 100MW at peak load for the biggest mine).<sup>5</sup>

Power is the largest expense for mining companies in the Katanga copper belt region, due to high production losses from outages and the high cost of generators. This situation is also costly for the country. It is estimated that in 2012, power shortages resulted in a foregone production of 250,000 tons of copper, which translated into lost exports of US \$1.8 billion, a loss in GDP of US \$700 million (4.4 percent of GDP) and a loss in tax revenues of US \$250 million (1.6 percent of GDP).<sup>6</sup>

Given the potential low cost of a hydro-based electricity grid, Katanga mine operators are keen to collaborate with SNEL to obtain reliable grid-supplied electricity, and are willing to pay higher tariffs provided that the power reliability improves.<sup>7</sup>

Large mining investments can contribute to national development not only by providing financial benefits, but also by leveraging private sector investment in sectors that can foster growth. (See Precept 10 of the Natural Resource Charter.) The combination of large hydropower resources and a power intensive mining sector creates an ideal environment for power-mine synergies. The creditworthiness of large-scale mining operations and the long term off-take agreements they can provide to the utility can be leveraged to attract financing for investments in power generation and transmission infrastructure that would otherwise not be made.

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2 World Bank, Sudeshna Ghosh Banerjee, Zayra Romo, Gary McMahon, Perrine Toledano, Peter Robinson, and Inés Pérez Arroyo, "The Power of the Mine, A Transformative Opportunity for Sub-Saharan Africa," (2014).

3 DRC 2013 EITI report. <https://eiti.org/files/Rapport%20de%20Conciliation%20ITIE%20RDC%202013%20-%20Final%20-%20PG.pdf>

4 World Bank, "Democratic Republic of Congo Growth with Governance In the Mining Sector," (May 2008), available at: <http://siteresources.worldbank.org/INTOGMC/Resources/336099-1156955107170/drcgrowthgovernanceenglish.pdf>.

5 World Bank (2008).

6 World Bank (2014).

7 World Bank (2014).

## THE RESPONSE: KATANGA MINING AND SNEL COOPERATION

GlencoreXstrata Plc is one of the two biggest copper producers in the DRC. Through its subsidiary Katanga Mining Ltd., GlencoreXstrata announced in 2012 that it had signed a loan agreement with the national utility (SNEL) for US \$283.5 million to upgrade the DRC's electricity generation capacity (Inga 2) and transmission network to meet the growing needs of its copper-cobalt operations.<sup>8</sup> The investment and additional interest on the loan will be reimbursed by SNEL through utility bill credits on the electricity used by mining companies. The majority of the investment (US \$189 million) will be paid back to Katanga Mining through its own subsidiaries operating the mines of Kansuki and Mutanda in the region, both of which will utilize a substantial part of the additional electricity that is generated. According to the agreement, 10 percent of extra power (in addition to what is needed by the mines) will be generated and sold back to SNEL. Part of the power bills payable will provide funds for maintenance. According to Katanga Mining, once the investment has been completed, grid-supply is expected to reach 450MW of power capacity, an amount still far below the total electricity needs of the region.<sup>9</sup>

The project's setup took four years of negotiation, it commenced under a joint venture structure that subsequently failed because of disagreements between the miner and SNEL. In 2012, following the appointment of a contractor (jointly supervised by the mining company and SNEL) the project finally got the green light for development but is yet to be completed.<sup>10</sup> There is mistrust between the utility and companies,<sup>11</sup> and the energy supply agreements remain a secret despite calls from civil society for transparency.<sup>12</sup>

Other miners are trying to source power from the grid without similarly agreeing to invest substantially in its upgrade. All mining companies are subject to an electricity-rationing program, due to a power shortage that will take years to resolve.<sup>13</sup> Miners (including GlencoreXstrata) have also been asked to contribute to the planning of the major power supply expansion project of Inga 3 (with an expected capacity of 4,500MW) that could put an end to years of unreliable power supply. In addition to supporting the planning process, mining companies are also expected to commit to long-term off-take agreements. Despite interest in collaborating, mining companies are advancing cautiously while they wait for much needed institutional reforms. For the miners, delays in implementing the deal between Katanga Mining and SNEL, and the rationing program, signify the instability at the Ministry of Energy level that hampers mining collaboration.

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8 Katanga Mining Limited, "Katanga Mining signs agreements to develop future power supply," Press release (March 29, 2012), available at: <http://www.katangamining.com/media/news-releases/2012/2012-03-29.aspx>.

9 Katanga Mining Limited, (2012).

10 World Bank (2014).

11 <http://www.bloomberg.com/news/articles/2015-10-20/congo-s-mining-lobby-group-calls-for-shake-up-in-power-industry>

12 <http://www.mining.com/the-new-eitis-requirements-and-national-power-utility-companies-transparency-the-case-of-snel-in-drc-11139/>

13 Michael J. Kavanagh, "Congo halts mining expansion projects amid electricity shortage," *Businessweek* (March 5, 2014), available at: <http://www.businessweek.com/news/2014-03-05/congo-halts-mining-expansion-projects-amid-electricity-shortage>.

Separately, the government, assisted by the World Bank, is undertaking an extensive reform process to re-establish the financial and operational viability of SNEL over a 5-year period (2012-2017), which would liberalize the national electricity sector to allow for private investment in power generation and transmission, and facilitate public-private partnerships.<sup>14</sup> Outputs include the privatization of the Katanga province's high-tension electricity network, which should improve operations and maintenance; and in 2014, parliament passed a law to liberalize the electricity industry to allow for private investment in power generation and transmission.<sup>15</sup> It remains to be seen whether partial privatization and increased competition in power generation and transmission will help overcome deep institutional and coordination problems.<sup>16</sup>

## OUTCOMES

When the interests of mining companies and governments align to upgrade power infrastructure, gains can be made. For example:

- The public utility benefits from increased power generation and an extension of the grid, critical to supply potential third party clients and to increase electrification in the country.
- The mining company gains access to cheaper electricity (than if it were to self-supply) and a more reliable power supply due to “special treatment” as a result of the loan.
- The country can potentially benefit from higher tax revenues if power generation costs decrease for the mining sector which would enable it to become more competitive globally.
- Local communities will only benefit if those who are negatively affected or displaced by the investment<sup>17</sup>, are appropriately compensated.

14 World Bank (2014)

15 Kavanagh (2012).

16 [http://www.lepotentielonline.com/index.php?option=com\\_content&view=article&id=5032:snel-combines-et-corruption-font-bon-menage&catid=85:a-la-une&Itemid=472](http://www.lepotentielonline.com/index.php?option=com_content&view=article&id=5032:snel-combines-et-corruption-font-bon-menage&catid=85:a-la-une&Itemid=472)

17 <https://www.internationalrivers.org/resources/community-history-of-inga-1-and-inga-2-3622>

## KEY LESSONS

The mining sector has the potential to spur improvements in the DRC’s electricity sector. In Katanga, the lack of energy infrastructure has been a key bottleneck to production in the copper sector, hence mining companies took the decision to invest in the energy grid in exchange for cheap, reliable electricity. Institutional and regulatory challenges stand in the way of seeing this potential realized. Despite some promising reforms, it is still not certain whether an effective partnership with the public utility, SNEL, is possible or whether local communities and the non-mineral economy will benefit. Successful implementation of the Inga 2 dam could demonstrate the viability of the partnership approach and further unlock the energy potential of the rivers of the DRC. It could also help convince mining companies to invest in the Inga 3 dam which has the potential to become the world’s largest hydropower dam and transform energy across the Southern African region.<sup>18</sup>

Based on learnings from this case study and similar cases in sub-Saharan Africa,<sup>19</sup> four recommendations can be derived to help similar countries ensure strong and sustainable power supplies:<sup>20</sup>

- Ensure the public utility is a viable and creditworthy partner for the mining company: The public utility — whether it is a power off-taker, power distributor, or co-investor — will be the main partner of the mines, so ensuring its financial health and creditworthiness is paramount to a successful and sustainable mining integration. The financial solvency of SNEL and its ability to repay loans and interests is questionable, given that it has subsidized the mining sector for years and imposed tariffs at below cost-recovery level. This kind of incentive, designed to attract investment, is often counter-productive: it undermines the financial solvency of the utility, which in turn cannot maintain a robust power system to satisfy the needs of investors.
- Integrate power and mining master plans: A few countries, including Tanzania, have incorporated the mining sector’s growth and the industry’s power investment plans in to the government’s power master plan. The lack of integrated plans in the DRC makes it challenging to identify and facilitate synergies with the mining sector.
- Encourage a stable, investment-friendly environment: When gas or hydropower resources are available in a country, mining companies are generally eager to collaborate with the public utility to develop and upgrade these relatively inexpensive generation sources. However, this will only work if the country is stable, risk is relatively low, and if the legal framework provides enough clarity and certainty to ensure that mining operations will ultimately benefit from any long-term investments made. Uncertainty in the regulatory environment, lack of transparency and accountability in the sector,<sup>21</sup> allegations of corruption<sup>22</sup> and perceived political risks make it difficult for the DRC to attract such investment.

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18 <http://www.ft.com/cms/s/0/207ac48c-34ef-11e4-aa47-00144feabdc0.html#slide0>

19 For more case studies see: Perrine Toledano, “Leveraging the mining industry’s energy demand to improve host countries’ power infrastructure,” Columbia Center on Sustainable International Investment, Columbia University (September 2012), available at: <http://ccsi.columbia.edu/files/2014/05/CCSI-Policy-Paper-Leveraging-mining-industry-s-energy-demand-to-improve-host-country-s-power-infrastructure-Sept-2012.pdf>.

20 Adapted from, “The Power of the Mine”, *A Transformative Opportunity for Sub-Saharan Africa*, op. cit.

21 <http://www.mining.com/the-new-eitis-requirements-and-national-power-utility-companies-transparency-the-case-of-snel-in-drc-11139/>

22 Augustin Nguh, “Corruption and Infrastructure Megaprojects in the DR Congo: A Recipe for Failure?” *International Rivers* (2013).

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- Support an effective regulatory authority: In most countries, technical regulation is satisfactory, but economic regulation — deciding on market access and setting cost-recovery tariffs to enable the utilities to be viable enough to maintain equipment and make investments — is weak. In the case of the DRC, implementation of legislation to liberalize the energy sector, including the establishment of a regulatory authority, has been slow.<sup>23</sup>

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23 <http://www.bloomberg.com/news/articles/2015-10-20/congo-s-mining-lobby-group-calls-for-shake-up-in-power-industry>

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